DOCUMENT RESUME

ED 121 395 JC 760 238

AUTHOR McClure, Lyndon
TITLE Occupational-Technical Curriculum Development TV Study.
INSTITUTION Dallas County Community Coll. District, Tex.; Texas Education Agency, Austin. Div. of Occupational Research and Development.
NOTE 47p.

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage
DESCRIPTORS Broadcast Television; Community Colleges; Course Evaluation; *Educational Television; *Junior Colleges; Literature Reviews; *Program Effectiveness; Student Attitudes; *Teaching Methods; Technical Education; *Vocational Education
IDENTIFIERS Dallas County Community College District

ABSTRACT

Section I of this report provides a brief review of various experiments and studies conducted in the United States and abroad on the effectiveness of televised occupational-technical courses. Issues discussed include the packaging of televised instruction; the need for preproduction testing; the limitations of television teaching; teacher and student attitudes toward televised instruction; the effects of animation, dramatic presentation, humor, etc. on instructional television; and the effectiveness of various formats and instructional techniques. Section II describes the efforts of the Dallas Community College District to develop a television curriculum in the occupational-technical area. Pilot lessons were filmed of three specially selected courses: Computer Programming, Criminal Investigation, and Radiographic Positioning. The evaluations of these pilot lessons are presented. Section III presents the 1974-75 evaluation results of the four telecourses that were offered by the Dallas County Community College District. Enrollment averaged about 950 students per telecourse per semester. The majority of these students considered the telecourse to be an academically respectable and useful way to earn college credit. Recommendations and suggested revisions are appended, along with a bibliography. (Author/NHM)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED121395

U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

OCCUPATIONAL-TECHNICAL

CURRICULUM DEVELOPMENT TV STUDY

Project Director--Lyndon McClure

DEVELOPED JOINTLY BY:

The Division of Occupational and Technical Education, Texas Education Agency

and

Dallas County Community College District
Dallas, Texas

PROJECT NUMBERS: 42309075, 42301442

SC 760 238

ACKNOWLEDGEMENT

Special recognition in the development and implementation of this study goes to the following individuals.

. Travis Linn - Assistant to the Chancellor

. Ted Pohrte - Instructional Development Specialist

. Bette Plog - Instructor, Computec Science

. Mary Watts - Division Chairperson, Allied Health

. Pat Schuster - Instructor, Police Science

TABLE OF CONTENTS

I. INTRODUCTION

II. RESEARCH 3

A. Experiments and Studies of Occupational-Technical TV Instruction 3

B. TV Colleges and Courses 7

C. TV Instruction as a Package 10

D. Pre-Production Testing 14

E. Limitations of Television Teaching 18

F. Attitudes Toward TV Instruction 20

G. Animation and Dramatization 22

H. Lecture-Interview-Panel Discussion 23

I. Additional Techniques 23

III. DEMONSTRATION 29

A. Computer Science Fortran Programming
Bette Plog - Instructor 31

B. Fundamentals Of Criminal Investigation
Pat Schuster - Instructor 33

C. Radiographic Positioning
Mary Watts - Instructor 35

IV. RESULTS 37

A. Telecourse Evaluation Results 37

B. Additional Statistics 39

C. Recommendations and Revisions 40

OCCUPATIONAL-TECHNICAL TV

The Dallas County Community College District operates an Instructional Television Center (ITV) which includes producers, managers and instructional design specialists, production assistants, writers and a videomaker. The center contracts with KERA-TV (Channel 13 for studio services, video-tape services and graphics.

Five telecourses are presently being offered: Man and Environment, English 101, American Government and Introduction to Psychology. Each telecourse offers three hours of college credit upon successful completion. The courses, and the credit, are equivalent to that offered on campus.

In addition to the five courses mentioned above, the following courses will be added in the fall of 1975:

Anatomy of Science (Based on Ascent of Man)

Anthropology (Developed by Coast Community College District)

Consumer Finance (Developed by the University of Wisconsin)

English Literature (Developed by the DCCCCD)

Introduction to Business (Developed by the DCCCCD)

Enrollment in 1974-75 has averaged 800 students per course per semester in Dallas County. Other institutions in the North Texas area, Tarrant County Junior College, Weatherford College, McLennan Community College, Hill Junior College and Navarro Junior College have offered this same course on a cooperative arrangement and their combined enrollment equals the Dallas County enrollment.

The associate's curriculum addressed business fulfillment at a variety of levels each level (i.e. at a academic personnel "grease level"), advanced academic and management, and level to ask an computer assistance for orientation, transaction and examination.

Since the Harlan County Community College Division presently offers an Occupational Technical programs with an enrollment of over 2,000 duplicates, the questions was posed: What Occupational Technical courses would be desirable and be better to offer on television?

Additional questions related to the televising of Occupational Technical courses were:

1. Does other educational institutions telecast Occupational-Technical courses?
2. What are some problems involved in the televising of such courses?
3. What would be the costs of development and production?
4. What would be the personnel involved?
5. What Occupational Technical courses would be desirable and feasible to offer on broadcast television?

On the basis of the interest to determine importance and the need to know the answers to these questions, a proposal was submitted to the Kansas Educational Agency.

The proposal was funded and the project began May 1, 1971.

The initial phase of the project involved the research of literature on the subject and visits with various curriculum personnel in metropolitan

[illegible]

[illegible] [illegible] [illegible] [

one course entitled "Understanding Semiconductors," and it is now being sold to educational institutions and private businesses. Graphics, camera shots and demonstrations were used effectively as teaching aids.

The Nebraska Educational Telecommunications Center located on the University of Nebraska campus at Lincoln, Nebraska is the center of the Nebraska Educational Television Network. The "Center," one of the most comprehensive operations of its type in the United States, is capable of producing, duplicating and distributing every form of instructional technology: broadcast television, closed circuit television, television cassettes, color and black and white films, filmstrips, photographs, all forms of arts and graphics, as well as printed materials. In addition the University of Nebraska co-sponsors with the Department of Health, Education and Welfare a "University Without Walls." It is termed the S.U.N. (State University of Nebraska) project. It is the intent of the S.U.N. project to develop and offer first and second year college courses for credit through telecommunication and regional Resource Centers such as high schools, libraries, private and public colleges and universities. Each televised lesson departs from the traditional lecture technique and instructs creatively with dramatic vignettes, true to life situations and graphic examples. The lessons are divided into parts called modules: study guide syllabus (including textbook material), television, audio cassette, newspaper, learning kit and testing.

A recent development among community colleges offering television courses is the Television Consortia. In an effort to share resources more efficiently, individual colleges, and college districts have entered into

agreements whereby courses developed by one college are made available on a lease or rental system to other colleges in the consortia. In California alone there are presently seven consortia involving more than forty five Community Colleges.

The author has not attempted to list all the colleges offering television instruction, but has instead attempted to provide a representative sampling of colleges offering television courses in the occupational-technical curriculum. The evidence is growing that television instruction, at one time out of favor among educators, is having a rebirth. However, a comparison between television instruction of the 1950's and early sixties and that being developed now can show the reason for this rebirth.

Television instruction even though carefully planned, budgeted and used appropriately still cannot stand alone. Television must be part of a package in order to be an effective educational tool.

TV Instruction as a Package

Godwin Chu and Wilbur Schramm provide some insight into what often happens when school systems engage in television instruction.[1] Very seldom do schools provide enough lead time for setting up an instructional system. Financing, delivering and operating the hardware comes first, followed by the development of the software.

According to several television instructors, there needs to be a lot of lead time to plan a course. It would be best to begin planning twelve months in advance and tape all the programs prior to the start of the next year.

Inadequate attention is given to methods and content of television teaching. Typically there is seldom enough time to review the curriculum and methods of teaching when gearing up for television instruction. But there is an unequalled opportunity to review what is to be taught, against the goals and objectives of the system, and to review and recast the methods of teaching that have grown up over the years.[1]

The crux of the problem is to determine whether the effectiveness of a course in terms of the educational needs of students is improved by its adaptation to television. Adaptation of courses to television and of television to courses should be proposed, justified and defended in terms of improvement of the courses as one part of the academic and personal development of students. In this connection it would seem that television has many possibilities for the effective presentation of a wide variety of learning experiences: close-ups of small objects, models, demonstrations, motion and still pictures, charts, guest speakers and panel discussions.[7]

Too little attention is given to mastering the skills of effective teaching by television. A classroom teacher, without previous experience in using television, needs to learn a great deal about the medium. He needs to observe himself as a television teacher and to make maximum use of feedback from pupils and other teachers and to do a great deal of preparation so as to make his broadcast more than a talking face. He needs to gather visuals, to arrange demonstrations, interviews and develop other variety-producing devices.[1]

The development of an effective television course might follow the

pattern as described by Leslie Greenhill.[4] The first step would be to define course and lesson objectives in terms of detailed descriptions of desired terminal behavior of students, followed by building, testing and refining adequate measures of student performance. The next step would involve the selection of content and presentation methods which appear to be appropriate to the stated objectives, and recording these on video tape. At this time it would be appropriate to expose students to the televised course and administer the criterion test or tests. On the basis of an analysis of test performance and on the basis of interviews with students, modifications could be made in the original lessons and revised versions could be recorded. Finally, a comparison could be made of the effects of the original version and the revised version on the performances of students randomly assigned to the two treatment groups.

Too little time and money are allotted to training for the instructional use of television. It has often been noted that the personnel of instructional broadcasting consists largely of educators who do not fully understand television. The product most needed is the combined broadcaster - educator.[1]

The questions occur: what makes for an effective television course? What are some things to avoid and are there guidelines that can be followed? Charles F. Hoban of the University of Pennsylvania states ". . . an audience responds to a film and learns from it more effectively when (a) the audience becomes involved in the subject presented on the screen; (b) the story of the film is told visually, and verbalization at an optional level is integrated

with the visual presentation: (c) crucial sequences are repeated in the film; (d) the rate of development is adjusted to the rate of learning of the audience; and (e) the audience is oriented to the story or task presented in the film . . . any or many of these factors, if improperly employed in a film may interfere with learning rather than facilitate or contribute to it. Too much talking, irrelevant introductions, unwieldly audience participation, fast rate of development, high density of facts, a too-literal representation which obscures the audience's perception of the crucial cues -- all appear to detract from the effectiveness of films in instruction."

"The degree of specificity with which the producer describes the attitudes he wishes to engender, states the points of information he is trying to convey, or defines the objective he intends to accomplish, is related to the accuracy with which predictions can be made concerning the effects of his film on a given audience."[5]

Relating more specifically to occupational-technical television courses, Mark May of Yale University contends that a visual presentation is much more helpful for cueing the correct manual responses than a verbal description. According to May, "If the task is to perform a sequence of acts, such as knot tying or assembling the parts of an automobile ignition distributor, the responses required by the demonstration are also different from those required by verbal learning tasks." Before any useful statement can be made about the roles of visuals and verbals in motivating cuing and reinforcing acquisition responses it is necessary to know what kinds of responses are being considered and the conditions on which they depend. For example, if

the task is to acquire a perceptual - motor skill, or to memorize a list of names or verses of poetry, or to learn a new concept, a number of repetitions or amounts of practice may be required, but if the task is to understand an explanation or to grasp a principle, a single presentation may be sufficient.[3]

According to Leslie P. Greenhill of Pennsylvania State University "In teaching some skills it is undoubtedly necessary to provide for consistent practice by the learner. To achieve this, a demonstration is presented in a series of steps and time is allowed for the learners to perform each step on their equipment before the next step is shown over television. Some of the early film research studies testified to the efficiency of this method if the rate of development of the presentations was slow enough to permit the learners to alternate attention between the demonstration of film and their own performance."[4]

Pre-Production Testing

Perhaps the most effective method to assure that a television course will meet the students needs is pre-production testing.

In a classroom situation there is two-way communication; questions may be asked about misunderstood or misinterpreted portions of the original message and as a result misinterpretations may be corrected. A television course can in a sense have this two-way communication via pre-production testing. There is a need for pre-production testing when (1) the target audience is specified, (2) the content is complex and (3) no precedent exists for content or method.

"The crucial decision of when to introduce the test is required in order to determine the earliest stage in production at which a sufficiently representative model of the finished film can be provided for the test audience. Experience has demonstrated that, in most cases, the most valid and the earliest time with which persons unacquainted to filmmaking or cinematic terms can make judgments . . ."[8]

"The basic task of the pre-production tester is to provide a model which at as many of the significant aspects as possible, will faithfully resemble the finished product.

Even if it were possible, it would be impractical for a producer to test all of the persons in his target audience. Instead, he resorts to a sampling procedure to obtain a small group which resembles his target audience . . . If the model does not resemble the target audience in the characteristics deemed important, the result of the test will have little value."

Additional factors to consider when selecting a course to be offered by television include: (1) There should be a clear need for television in terms of numbers of students to be served either now or in the near future, or in terms of shortages of competent faculty members either now or in the foreseeable future. (2) The instructor who will teach the course should be a dynamic competent teacher, and one who is personally interested in experimenting with his course on television. (3) There should be some possibility of improving the quality of the instruction. (4) It should be feasible to schedule the course on television.[9]

The crux of the problem as to classroom attention has often overlooked at a minor or minor of the educational needs of students is improved by the adaptation to environment. Adaptation of courses for classroom implies much more than applying many of the particular techniques of professional instruction, tests and grades. Adaptation of courses to classroom and of classroom to courses should be prepared, controlled and delivered in terms of implementation of the courses as one part of the academic and personal development of students. In this connection it should seem that classroom has many possibilities for the effective grades, terms of a wide variety of learning experiences. Other can of small students, methods, demonstrations, outside and who personal, drama, guest speakers and panel discussions.

It is very difficult to adapt academic courses if classrooms. Small-talent courses are not easily available. Furthermore, experienced teachers have that their courses become strongly component as personal talent courses and hence they are difficult to change. The [illegible] possible approach to make group may be the planning and developing of new courses with the main in personality from over classroom and which full advantage of the method.[1]

Service suggested factor is consider as happened your [illegible] model course to the successful of good basic instruction if classroom so as be an effective means of learning the educational needs of students. A decision [illegible] course to the size of group and that could be individual and classroom. There are very real factors that have contributed to distance from classroom, so that students participate in are more effective than lectures or discussions, so also that evaluation contributes to learning needed to progress given it

will result in more learning than will expository presentation in instructional television. In a study conducted in 1951, Rock, Duva and Murray found that army reservists taught by direct narration seemed to learn and retain more than those taught by dramatization.

Lecture-Interview-Panel Discussion

Students are likely to acquire the same amount of learning from instructional television whether the materials are presented as a lecture, or in an interview, or in a panel discussion. In 1956 Brandon had three speakers, each presenting one of three different topics in three formats: as a lecturer, as an expert being interviewed, and as a panelist in a discussion with another panelist and a moderator. From the nine 10-minute segments, 18 half-hour television programs were prepared, each featuring three speakers and three formats in different combinations. In the course of the whole experiment, the interview and discussion formats were found consistently more interesting to the students than the lecture presentation. However, no significant differences were found in the amount of information learned from any of the presentation formats. Thus it seems that the formats of presentation make little difference to the amount of learning from instructional television, although interview and discussion tend to be more interesting.

Additional Techniques

-Inserting questions in a television program does not seem to improve learning, but giving the students a rest pause does.

-There is no clear evidence to suggest whether eye-contact in television instruction will effect the amount of learning.

-Problem-solving instruction on television is more effective than lecturing where the materials taught involve the solving of a problem.

-Practice, whether by overt or covert response, will improve learning from instructional television if the practice is appropriate to the learning task, and if the practice does not constitute an interference. In an experiment reported by Ash and Jasper (1953), overt practice was actually found to be detrimental to learning. The task to be learned was the assembly of an antiaircraft gun breechblock. The film showed a step by step assembly of the breechblock, either at a rapid pace or at a slow pace. The rapid version ran three minutes, the slow version four and a half minutes. For each version, some of the Navy trainees were told to follow the correct assembly by working with an actual breechblock in their hands while viewing the film. This is the participation treatment. Others were told to wait until the film was over. After the film, all trainees went to tables in the viewing room and assembled an actual breechblock.

Their performance was scored by the amount of time required, as well as by a pass-fail score. It was found that with the slow film, participation resulted in significantly greater learning than no participation. But with the fast film, participation actually interfered with learning, and the no-participation group did better.

In the experiment by Ash and Jasper, the Navy trainees in the participation group were instructed to practice assembling the breechblock at the

same time as the film was being shown. In other words, they would not be able to pay full attention to the fast film. It is hardly suprising that these trainees did not learn the task well.[1]

In the United States and Britain, correspondence courses in technical education have been looked upon as a poor substitute for the classroom, however in certain other countries with scattered populations such as Australia and New Zealand, or in countries desiring to train vast numbers of workers in a short time span, like the USSR and Poland, technical education by correspondence is an established method.

Occupational- technical education can be defined in a number of ways. It can include a degree course in engineering, or training as a laboratory technician, or an apprenticeship in a skilled manual job. In some places occupational-technical education includes secretarial and other commercial courses. Even with this variety of course work, it is always possible to identify the theoretical and teach it as a body of knowledge. The practical or "hands on" work can be tackled in several different ways.

The most widely used method is to teach the theory outside of the laboratory via correspondence and/or television instruction. The practical "hands on" experience can be gained in short intensive sessions at weekend or vacation schools.

In the USSR, it takes six years to complete a technical degree and in the first three years the student is entitled to thirty days paid leave a year and forty days in each of the following years. This leave is intended to give him the opportunity to go to consultation centers for advice and practical

work. The centers are located in factories, on university campuses or are taken to remote areas via a mobile center. In addition, television is used to demonstrate practical work for a whole range of courses: one channel is set aside purely for educational broadcasting.[8]

Obviously, in a country where there is state control over industry, it is much easier to insist that employers release students for short periods, or to demand that they put their laboratory facilities at the disposal of students. However, in most countries, employers recognize that it is in their own interests to have highly trained personnel and their cooperation could be more closely sought than it is at present. Some features of the Soviet system are used elsewhere. For example, the Open University in Britain uses television, together with short, compulsory courses to teach practical work though students do not receive paid leave to attend them.

Some of these methods are just as applicable to other areas of technical teaching. The Technical Correspondence Institute in New Zealand arranges with employers for students to be released for short periods of laboratory work each year. In the long run, the theory which an apprentice studies in his correspondence course is applicable to his trade, though perhaps in the short term his everyday work may not illustrate exactly the point he has reached in his course.

In some situations, the problem may not be how to give students enough opportunity to carry out the practical work, but rather the other way round: how to provide people, who have already picked up a working knowledge of a trade, with a theoretical training which will make them into

better practitioners. The problem was posed this way round in Venezuela and the reason why motor mechanics was chosen as the first technical training course to be offered by correspondence was precisely because there were many people practicing this trade who had never learned the theory involved. A situation of this kind no doubt exists in many places, especially in the building trade and similar skilled manual occupations. In these cases, correspondence courses may be just the answer because they have the great advantage that people can remain in their jobs while studying.

According to the director of the Center for Instructional Television in France, B. Pagney, "We try to make correspondence instruction responsive to the modest role which we believe it should play in this matter. It cannot act as a medium of professional training on its own: this is fundamental. It is not a proposition, but a demonstrable fact. There cannot be, it seems to us, professional training by correspondence alone. On the other hand . . . correspondence instruction must play a very important role in this training."[8]

The instructional design for television programs in Poland involves including the whole course in the written manuals which the students have to buy from the State Press for Scientific Literature, together with books of exercises. The television programs, however, made no attempt to cover the whole syllabus. They covered between 30% and 80% of the material in different courses and the main aim was to elucidate the points which students found particularly difficult. They concentrated especially on mathematics and physics but also on knotty points in chemistry, electronics and civil engineering. The topics were chosen by the Ministry of Education, which

then delegated top university academics to prepare the programs in conjunction with the television technicians.

The programs were centered mainly on the lecturer's talk but they also provided the opportunity to demonstrate practical work to go through problems step by step and generally give illustrative material which did not appear in the printed manuals.

The students who found the broadcasts most helpful were those who did some work on the topic beforehand and then followed up with further work soon afterwards. This illustrates once again that the programs were not intended to outline the whole course but rather to concentrate on difficult points. There was a positive correlation between those who used the broadcasts in this constructive way and those with the better examination results.

Although the majority of the students felt that the broadcasts were satisfactory, there were some criticisms made. The time of the broadcasts did not suit everyone. Many of the lecturers, although experts in their own fields, had had little experience of lecturing on television and did not always receive enough guidance about this. The result was that often they spoke far too quickly and presented more material than could really be digested by students in a thirty minute lecture. Perhaps the most persistent complaint, however, was that the broadcasts did not always coincide with the point reached in the written material.

It is important to point out that in several of the countries television has carried the entire weight of teaching and television is not that effective.

Where television has been effective: It is always combined with classroom teaching, supervised learning groups or home study material.

The studies also indicate that . . . where demonstrations are needed or where expert teaching needs to be shared widely, television is strong. Where learning requires continuing interchange between student and teacher, it is not strong.

It is apparent that television is an effective and efficient tool of instruction. There are certain limitations in its use, but the evidence is strong that in many countries television has been effective in teaching all age levels and a wide variety of subject matter.

SECTION II

The second phase of the present involved the selection of the occupational-technical courses that were to become the television pilots. A questionnaire was submitted to each of the occupational-technical instructors in each of the colleges. Thirty instructors showed interest in the project and listed the courses they felt would be adaptable for television. The courses selected as potential television courses were chosen on the basis of the following criteria: (1) the courses should involve the teaching of skilled perceptual motor acts and have audience appeal (2) the courses should be in core and growing programs and (3) the courses should reflect a variety of learning techniques.

Three occupational-technical courses, meeting that criteria, were selected. The courses were "Introduction to Computer Science," "Mathematics Positioning," and "Criminal Investigation." In each of the eight courses

[illegible] were developed. Each covered [illegible] [illegible]

The [illegible] [illegible] were covered in the development of the program, in addition to the Record Statistics. They were the description of the Observation - Control Card, and the Statistical Computational Subroutine - Sub Totals.

Care in code was essentially one of facilitation and general organization, with particular emphasis on the area of subroutine production. Early in the program, as the most appropriate subroutine for [illegible] were being selected, he provided private coaching for [illegible] [illegible] of each [illegible] [illegible] [illegible].

By an [illegible], he was assigned general oversight of budget, [illegible] arrangements, work schedule and the like. However, actual management of the project was the responsibility of the Record Statistics.

[illegible] assigned for [illegible] [illegible] and concerned with Security, [illegible] [illegible] [illegible] [illegible] and testing, as to some extent, he actually took part in the [illegible] [illegible] [illegible] as in the earlier portions of the programs.

Finally, as Instructional Development Specialist, brought in the part experience and expertise in the application of learning [illegible] [illegible] evaluation which had been developed in the production of other courses.

Finally was with faculty members who take to care during the production of the courses, assisting them in the design of the instructions, the planning and teaching of learning objectives, and particularly in the [illegible] and teaching of the [illegible] study guide elements of the courses. We also served as editor of the study guides.

[illegible] [illegible] [illegible] [

(f) Among Students Accommodated:

(i) (d) [illegible]

(ii) (c) [illegible]

Key accidents and risks can eliminate the programming assignments and [illegible] [illegible] and [illegible] [illegible] [illegible]

felt the instructor demonstration was more like "a real-life situation in the hospital."

The instructor felt that the TV presentation should have been slowed down and the learning objectives should have been flashed on the screen.

The students found it difficult to maintain interest in the TV presentation and were evenly divided concerning the value of the presentation in preparing them for the test.

SECTION III
Telecourse Evaluation Results

In addition to the results of the pilot demonstrations in Computer Programming, Criminal Investigation and Radiographic Positioning, the Dallas County Community College District television evaluation results of 1974-75 have been included. They are:

1. The overwhelming majority of telecourse students consider the telecourse to be an academically respectable and useful way to earn college credit.
2. While this mode of learning is suitable for a large percentage of students in the district, it is not well suited to all students; particularly those with serious learning disabilities.
3. Based on final grades, students enrolled in telecourses performed about as well as their counterparts in the classroom.
4. The attrition rate (percent of twelfth-day enrollees failing to earn at least a passing grade in the telecourses) for all telecourse students was approximately the same as the corresponding rate for

all on-campus students.

5. All elements used in a given telecourse are important, but their close and logical integration is a key aspect of course structure.

6. A carefully designed study guide appears to be the single most important element.

7. A well written textbook having a readability level between 10th and 12th grade seems to be a useful source of subject matter content--facts and concepts.

8. Well-designed, professionally-produced television programs, of 30-minute duration, are particularly effective in reinforcing key ideas, stimulating interest in consciencious study and causing changes in attitudes (achievement of affective learning goals).

9. Because there is far less face-to-face contact between instructor and student, than in classroom instruction, the quality of that contact is of great importance. The telecourse campus instructor, together with all other personnel involved, assumes a more critical role than usual. Personnel attitudes and learning management procedures are even more important than is traditional for on-campus courses.

10. Traditional roles and conventional wisdom in higher education appear to be of diminished relevance and usefulness in the development and operation of highly effective telecourses. An instructor who may be very effective in a traditional classroom setting may not be sufficiently effective on camera. Historically, college instructors have usually not only had full responsibility for all course elements, but

also frequently produced all elements themselves. The production of high quality telecourses, however, requires a depth and breadth of expertise rarely possessed by a single individual. In other words, a team of professional specialists and skilled technicians are essential to effective instruction by open-circuit television.

11. Frequent evaluation and revision are necessary to enhance learning significantly for telecourse students on a continuing basis.

Additional Statistics

Some useful and interesting statistics are beginning to emerge from various surveys conducted during the Fall of 1974.

1. About two-fifths of the students watch each telecourse program more than once.
2. More than 70% feel they have learned at least as much by telecourse as in classroom-taught courses.
3. About two-thirds of the students were taking on-campus courses in addition to telecourses.
4. Over one-third of all telecourse students were carrying 12 credit hours or more.
5. Of those students who responded to a questionnaire, when asked for their opinion of DCCCD telecourses: 30% were strongly favorable; 37% were favorable; 18% were neutral; 5% disliked them; Less than 1% strongly disliked them; and about 9% did not offer an opinion.
6. About two-fifths indicated they would like to earn a 2-year degree

entirely by telecourses; about one-third, the 4-year degree.

7. A general description of telecourse students includes these facts: about half of them are professionals and white collar workers; about 2/3 of them have from 1 to 60 hours of college credit; about 4/5 of them are working toward a degree (2-year, 4-year, or other); over half of them are between 20 and 40 years old; over 2/3 of them have annual total-household incomes in the $10,000 and up range, with over 2/5 in the $15,000 and above bracket; about 9/10 class themselves ethnically as white; over 1/4 were receiving veterans' benefits; and the ratio of males to females was approximately 4 to 5.

8. Production costs for thirty half-hour English 101 lessons totaled $90,000; Government 201, $85,000. Total production costs for new courses are estimated to exceed $100,000. Air time costs run $150 per hour on KERA-TV Channel 13.

Recommendations and Revisions

Based on the results of the Dallas County Community College District's involvement in televising college credit courses and the information obtained via the Occupational-Technical TV study, the following revisions and actions have been taken or are under consideration:

1. Course management procedures and ITV Center functions and relationships vis-a-vis the colleges of the district have been reviewed and changes made which appear to be serving students much more effectively.

2. Internal procedures of the ITV Center, particularly the Hotline operation, have been substantially improved by adding additional lines and operators, and by keeping operators better informed.

3. A comprehensive telecourse procedures handbook has been developed for the district which includes detailed administrative procedures and information, future plans, and program goals and philosophy. Supplements specifically designed for admissions and counseling personnel, Test Center personnel, and telecourse developers are now being prepared.

4. One of the most nagging concerns is the attrition rate which, while not significantly worse than the on-campus rate, is unacceptable: corrective actions in operation or under consideration are:

   - more accurate and complete telecourse information for potential students at the time of enrollment,
   - more and better-informed pre-enrollment counseling,
   - diagnostic testing of all enrollees in English 101,
   - better use of orientation sessions in counseling enrollees,
   - closer and more frequent follow-up with students exhibiting performance deficiencies,
   - more use of counseling and diagnostic testing services during the semester,
   - improved course management procedures,
   - improved television programs,
   - up-graded and substantially revised study guides.

- careful attention to readability levels of all print materials,

- improved integration and coordination of all course elements (particularly closer agreement between learning guide and all the instructional elements of course),

- improved validity and reliability of examinations,

- better use of newsletters and hotline service,

- better orientation of all personnel involved with telecourse students,

- more complete and accurate evaluations of the instructional system.

5. Since the study guide is the key element in the telecourse, it is especially important to be constantly alert to ways in which it might be made more useful to students: substantial changes are being made in the Writing for a Purpose (English Composition) and American Government guides.

6. Evaluation data and recommendations have been solicited from TCJC and the other colleges using the telecourses--TCJC personnel involved with the telecourses have been particularly helpful and their recommendations are being seriously considered and incorporated where possible.

1. [illegible], Gerbner C., and Schramm, Wilbur. Learning From Televised Instruction, What the Research Says. Stanford University, California: Institute for Communication Research, 1967.

2. Allen, William H., Audio-Visual Communications Research II. Visual Communication Laboratory, Santa Monica, California, September 15, 1954.

3. Weir, Ward A., Visual-Picture Relationships in Audio-Visual Presentations IV Working Paper. USAFW. Contract No. [illegible], July 31, 1963.

4. Gawantka, Loraine F., "A Review of Some Trends in Research on Instructional Films and Instructional Television," Pennsylvania State University, 1954.

5. Bishop, Charles F. and Van Ormer, Edward B., Audio-Visual Film Research, 1918-1954. Pennsylvania State University, 1955.

6. Rose, Nicholas, Van Horn, Charles, "Theory and Applications of Reinforcement Tendons," [illegible] Publication 1955.

7. Carpenter, C. R. and Gawantka, L. F., An Investigation of Closed Circuit Television for Teaching University Courses, Audio-Visual Research, Report Number Two, Pennsylvania State University, 1954.

8. Palmer, Jenny, A Review of Conceptual Technical Innovations in Two Foreign Countries, "Technical Innovations at a Distance," National Extension College, Cambridge, England, 1974.

UNIVERSITY OF CALIF
LOS ANGELES

MAY 11 1976

[illegible]